SEQUENCE LISTING

<110> PODBIELSKI, Andreas

<120> COLLAGEN BINDING PROTEINS FROM STREPTOCOCCUS PYOGENES

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<140> US 09/494,297
<141> 2000-01-31

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<170> PatentIn version 3.1

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Ser Asn Leu Val Ser Thr Ser Gln Leu Ser Leu Met Arg Gln Ala Leu
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Glu Leu Ser Asp Gly Thr Tyr Thr Leu Thr Glu Leu Asn Ser Pro Ala
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Gly Tyr Ser Ile Ala Glu Pro Ile Thr Phe Lys Val Glu Ala Gly Lys
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Ile Val Glu Pro Tyr Ser Val Glu Ala Tyr Asn Asp Phe Glu Glu Phe
385                 390                 395                 400

Ser Val Leu Thr Thr Gln Asn Tyr Ala Lys Phe Tyr Tyr Ala Lys Asn
                405                 410                 415

Lys Asn Gly Ser Ser Gln Val Val Tyr Cys Phe Asn Ala Asp Leu Lys
            420                 425                 430

Ser Pro Pro Asp Ser Glu Asp Gly Gly Lys Thr Met Thr Pro Asp Phe
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Thr Thr Gly Glu Val Lys Tyr Thr His Ile Ala Gly Arg Asp Leu Phe
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Lys Tyr Thr Val Lys Pro Arg Asp Thr Asp Pro Asp Thr Phe Leu Lys
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His Ile Lys Lys Val Ile Glu Lys Gly Tyr Arg Glu Lys Gly Gln Ala
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Ile Glu Tyr Ser Gly Leu Thr Glu Thr Gln Leu Arg Ala Ala Thr Gln
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Leu Ala Ile Tyr Tyr Phe Thr Asp Ser Ala Glu Leu Asp Lys Asp Lys
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Leu Lys Asp Tyr His Gly Phe Gly Asp Met Asn Asp Ser Thr Leu Ala
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Val Lys Thr Asp Lys Thr Asn Leu Glu Phe Lys Asp Gly Lys Ala Thr
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Gly Tyr Ser Tyr Leu Val Lys Glu Thr Asp Ser Glu Gly Tyr Lys Val
        675                 680                 685

Lys Val Asn Ser Gln Glu Val Ala Asn Ala Thr Val Ser Lys Thr Gly
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Ile Thr Ser Asp Glu Thr Leu Ala Phe Glu Asn Asn Lys Glu Pro Val
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Val Pro Thr Gly Val Asp Gln Lys Ile Asn Gly Tyr Leu Ala Leu Ile
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Leu Ile Gly Ile Val Gly Phe Ser Ile Arg Ala Phe Gly Ala Glu Glu
         35                  40                  45

Gln Ser Val Pro Asn Arg Gln Ser Ser Ile Gln Asp Tyr Pro Trp Tyr
     50                  55                  60

Gly Tyr Asp Ser Tyr Pro Lys Gly Tyr Pro Asp Tyr Ser Pro Leu Lys
 65                  70                  75                  80

Thr Tyr His Asn Leu Lys Val Asn Leu Glu Gly Ser Lys Asp Tyr Gln
                 85                  90                  95

Ala Tyr Cys Phe Asn Leu Thr Lys His Phe Pro Ser Lys Ser Asp Ser
            100                 105                 110

Val Arg Ser Gln Trp Tyr Lys Lys Leu Glu Gly Thr Asn Glu Asn Phe
        115                 120                 125
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Ile Lys Leu Ala Asp Lys Pro Arg Ile Glu Asp Gly Gln Leu Gln Gln
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Ile Met Lys Gly Ile Asp Pro Leu Asn Ala Ile Leu Val Thr Gln Asn
                165                 170                 175

Ala Ile Trp Tyr Thr Asp Ser Ala Gln Ile Asn Pro Asp Glu Ser Phe
            180                 185                 190

Lys Thr Glu Ala Arg Ser Asn Gly Ile Asn Asp Gln Gln Leu Gly Leu
        195                 200                 205

Met Arg Lys Ala Leu Lys Glu Leu Ile Asp Pro Asn Leu Gly Ser Lys
    210                 215                 220

Tyr Ser Asn Lys Thr Pro Ser Gly Tyr Arg Leu Asn Val Phe Glu Ser
225                 230                 235                 240

His Asp Lys Pro Phe Gln Asn Leu Leu Ser Ala Glu Tyr Val Pro Asp
                245                 250                 255

Thr Pro Pro Lys Pro Gly Glu Glu Pro Pro Ala Lys Thr Glu Lys Thr
            260                 265                 270

Ser Val Ile Ile Arg Lys Tyr Ala Glu Gly Asp Ser Lys Leu Leu Glu
        275                 280                 285

Gly Ala Thr Leu Lys Leu Ser Gln Ile Glu Gly Ser Gly Phe Gln Glu
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Lys Asp Phe Gln Ser Asn Ser Leu Gly Glu Thr Val Glu Leu Pro Asn
305                 310                 315                 320

Gly Thr Tyr Thr Leu Thr Glu Thr Ser Ser Pro Asp Gly Tyr Lys Ile
                325                 330                 335

Ala Glu Pro Ile Lys Phe Arg Val Glu Asn Lys Lys Val Phe Ile Val
            340                 345                 350

Gln Lys Asp Gly Ser Gln Val Glu Asn Pro Asn Lys Glu Val Ala Glu
        355                 360                 365

Pro Tyr Ser Val Glu Ala Tyr Asn Asp Phe Met Asp Glu Glu Val Leu
    370                 375                 380

Ser Gly Phe Thr Pro Tyr Gly Lys Phe Tyr Tyr Ala Thr Asn Lys Asp
385                 390                 395                 400

Lys Ser Ser Gln Val Val Tyr Cys Phe Asn Ala Asp Leu His Ser Pro
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Pro Asp Ser Tyr Asp Ser Gly Glu Thr Ile Asn Pro Asp Thr Ser Thr
            420                 425                 430
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Met Lys Glu Val Lys Tyr Thr His Thr Ala Gly Ser Asp Leu Phe Lys
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Tyr Ala Leu Arg Pro Arg Asp Thr Asn Pro Glu Asp Phe Leu Lys His
    450                 455                 460

Ile Lys Lys Val Ile Glu Lys Gly Tyr Lys Lys Lys Gly Asp Ser Tyr
465                 470                 475                 480

Asn Gly Leu Thr Glu Thr Gln Phe Arg Ala Ala Thr Gln Leu Ala Ile
                485                 490                 495

Tyr Tyr Phe Thr Asp Ser Ala Asp Leu Lys Thr Leu Lys Thr Tyr Asn
            500                 505                 510

Asn Gly Lys Gly Tyr His Gly Phe Glu Ser Met Asp Glu Lys Thr Leu
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Ala Val Thr Lys Glu Leu Ile Thr Tyr Ala Gln Asn Gly Ser Ala Pro
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Gln Leu Thr Asn Leu Asp Phe Phe Val Pro Asn Asn Ser Lys Asp Gln
545                 550                 555                 560

Ser Leu Ile Gly Thr Glu Cys His Pro Asp Asp Leu Val Asp Val Ile
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Arg Met Glu Asp Lys Lys Gln Glu Val Ile Pro Val Thr His Ser Leu
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Thr Val Lys Lys Thr Val Val Asp Glu Leu Gly Asp Lys Thr Lys Gly
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Phe Gln Phe Glu Leu Glu Leu Lys Asp Lys Thr Gly Gln Pro Ile Val
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Asn Thr Leu Lys Thr Asn Asn Gln Asp Leu Val Ala Lys Asp Gly Lys
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Tyr Ser Phe Asn Leu Lys His Gly Asp Thr Ile Arg Ile Glu Gly Leu
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Pro Thr Gly Tyr Ser Tyr Thr Leu Lys Glu Ala Glu Ala Lys Asp Tyr
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Ile Val Thr Val Asp Asn Lys Val Ser Gln Glu Ala Gln Ser Val Gly
        675                 680                 685

Lys Asp Ile Thr Glu Asp Lys Lys Val Thr Phe Glu Asn Arg Lys Asp
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Leu Val Pro Pro Thr Gly Leu Thr Thr Asp Gly Ala Ile Tyr Leu Trp
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Thr Ala Val Gln Leu Lys Tyr Tyr Cys Lys Glu Leu Asp Asp Phe Phe
50 55 60

Gly Asn Asn Leu Asp Thr Ile Lys Lys Gly Lys Ile Ile Cys Cys Phe
65 70 75 80

Val Lys Pro Val Lys Glu Phe Tyr Leu His Gln Leu Tyr Asp Thr Ser
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Thr Ile Leu Lys Leu Leu Val Phe Phe Ile Lys Asn Gly Thr Ser Ser
100 105 110

Gln Pro Leu Ile Lys Phe Ser Lys Lys Tyr Phe Leu Ser Ser Ser Ser
115 120 125

Ala Tyr Arg Leu Arg Glu Ser Leu Ile Lys Leu Leu Arg Glu Phe Gly
130 135 140

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Tyr Leu Ile Ala Met Leu Tyr Ser Lys Gly Phe Ile Val Ile Tyr Pro
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Ala Thr Asn Leu Arg Thr Ser Pro Trp Leu Glu Glu Pro Phe Ser Phe
        195                 200                 205

Tyr Asn Met Leu Leu Ala Leu Ser Trp Lys Arg His Gln Phe Ala Val
    210                 215                 220

Ser Ile Pro Gln Thr Arg Ile Phe Arg Gln Leu Lys Lys Leu Phe Ile
225                 230                 235                 240

Tyr Asp Cys Leu Thr Arg Ser Ser Arg Gln Val Ile Glu Asn Ala Phe
                245                 250                 255

Ser Leu Thr Phe Ser Gln Gly Asp Leu Asp Tyr Leu Phe Leu Ile Tyr
            260                 265                 270

Ile Thr Thr Asn Asn Ser Phe Ala Ser Leu Gln Trp Thr Pro Gln His
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Ile Glu Thr Cys Cys His Ile Phe Glu Lys Asn Asp Thr Phe Arg Leu
    290                 295                 300

Leu Leu Glu Pro Ile Leu Lys Arg Leu Pro Gln Ile Asn His Ser Lys
305                 310                 315                 320

Gln Asp Leu Ile Lys Ala Leu Met Tyr Phe Ser Lys Ser Phe Leu Phe
                325                 330                 335

Asn Leu Gln His Phe Val Ile Glu Ile Pro Ser Phe Ser Leu Pro Thr
            340                 345                 350

Tyr Thr Gly Asn Ser Asn Leu Tyr Lys Ala Leu Lys Asn Ile Val Asn
        355                 360                 365

Gln Trp Leu Ala Gln Leu Pro Gly Lys Arg His Leu Asn Glu Lys His
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